Remarks

Claims 25 and 30-39 are pending in the subject application and currently before the Examiner. Favorable consideration of the pending claims is respectfully requested.

Claims 25 and 30-39 are rejected under 35 USC §103(a) as obvious over Pene *et al.* (1988), Gruschwitz *et al.* (1993), or Kimata *et al.* (1995), and further in view of Johnson *et al.* (WO 97/39127). The Examiner cites the primary references as teaching the use of interferon alpha to downregulate IgE production. While acknowledging that the primary references do not teach downregulation of IgE production by interferon tau, the Examiner asserts that it would have been obvious to substitute interferon tau for interferon alpha in view of the Johnson *et al.* reference which, according to the Examiner, teaches that interferon alpha and interferon tau bind to the type I interferon receptor and have similar biological activities. The Johnson *et al.* reference is also cited as teaching interferon chimeras. Applicants respectfully traverse this grounds of rejection.

Applicants respectfully maintain that the claimed invention is not obvious over the cited references, regardless of whether the references are taken alone or in combination. Attached with this Response is a second Declaration Under 37 CFR §1.132 by Dr. Howard M. Johnson. A first Declaration by Dr. Johnson was submitted with Applicants' Response dated February 21, 2003. A copy of Dr. Johnson's *Curriculum Vitae* was included with that first Declaration; therefore, Applicants have not attached a copy of Dr. Johnson's *Curriculum Vitae* with this Declaration. Because Dr. Johnson's Declaration addresses issues raised by the Examiner in the May 19 Office Action as to functional differences between Type I interferons, Applicants respectfully request that the Examiner consider this second Declaration by Dr. Johnson in the examination of the subject application.

In the attached Declaration, Dr. Johnson, a recognized authority on interferons, explains and presents evidence that type I interferons, such as interferon alphas and interferon tau, do not have all the same functional activities. Dr. Johnson points out that the differences between interferons that he discusses in his Declaration are qualitative, not quantitative. As one example, Dr. Johnson indicates that the differences in toxicity associated with interferon tau and the other type I interferons are qualitative differences. In another example, Dr. Johnson notes the significant difference in apoptosis inducing activity between interferons tau and alpha that was published in the paper by Subramaniam

et al. (1998). Applicants note that the Subramaniam *et al.* publication was published before the filing date of provisional application No. 60/151,026 to which the subject application claims priority under 35 USC §119(e).

Dr. Johnson also discusses a publication by Soos *et al.* in which it was reported that interferon tau did not induce secretion of interferon gamma whereas interferons alpha and beta did induce secretion. Thus, while interferons alpha and beta activate the Th1 arm of the T cell response, interferon tau does not. This is a significant functional distinction and is yet another example showing that interferon tau and other interferons do not share identical qualitative functionality. Dr. Johnson also points out that research by Yanai *et al.* indicates that there are significant differences in activity even between subtypes of interferon alpha.

In making this rejection, the Examiner relies on the Johnson *et al.* (WO 97/39127) published application as teaching that interferon tau "has effects similar to those of interferon alpha," including anti-viral activity (citing pages 21-24 of WO 97/39127) and anti-proliferative activity (citing pages 24-26 of WO 97/39127) (see Office Action dated January 28, 2002). However, the Examiner failed to acknowledge the differences between interferons tau and alpha described in the WO 97/39127 publication. At page 25, lines 19-23, of the WO 97/39127 publication, it is demonstrated that interferon alpha did not inhibit proliferation of a T cell lymphoma, whereas interferon tau inhibited proliferation by about 60%. The authors of the WO 97/39127 publication state "Thus, only OvIFNτ is an effective growth inhibitor of this T cell lymphoma." The Examiner also indicates in the Office Action dated January 28, 2002 that "WO 97/39127 teaches that interferon tau binds to the same receptors as type I interferons (p. 5) . . .." However, at page 30, line 7, the authors of the WO 97/39127 publication state that interferon tau and interferon alpha "recognize the receptor differently" (emphasis added). Differences in receptor interaction would clearly suggest to the ordinarily skilled artisan that interferons tau and alpha would have differences in function and activities, which, as Dr. Johnson has pointed out with numerous examples, they do.

Thus, Applicants respectfully assert that just because there may have been some similarities between interferon tau and other type I interferons at the time of Applicants' invention does not mean that these interferons will share all the same functions or that an ordinarily skilled artisan would have expected that interferon tau would downregulate IgE production, even when it is given

that interferon alpha downregulates IgE production. The evidence provided by Dr. Johnson in his Declaration supports Applicants' position that the ordinarily skilled artisan would not have expected that interferons alpha and tau would share all the same functions such as the ability to downregulate IgE production. Accordingly, reconsideration and withdrawal of the rejection under 35 USC §103(a) is respectfully requested.

It should be understood that the amendments presented herein have been made solely to expedite prosecution of the subject application to completion and should not be construed as an indication of Applicants' agreement with or acquiescence in the Examiner's position.

In view of the foregoing remarks, Applicants believe that the currently pending claims are in condition for allowance, and such action is respectfully requested.

The Commissioner is hereby authorized to charge any fees under 37 CFR §§1.16 or 1.17 as required by this paper to Deposit Account No. 19-0065.

Applicants invite the Examiner to call the undersigned if clarification is needed on any of this response, or if the Examiner believes a telephonic interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

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DRP/sl
Attachment: Declaration of Howard M. Johnson, Ph.D. Under 37 CFR 1.132